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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,636	03/29/2001	Hiroyuki Ikeda	09792909-4795	5712

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EXAMINER

TRAN, THIEN F

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/821,636

Applicant(s)

IKEDA, HIROYUKI



Examiner

Thien F. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-19 and 39 is/are pending in the application.
- 4a) Of the above claim(s) 6-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/19/2003 has been entered.

Election/Restrictions

Claims 6-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species (claims 6-12 are drawn to embodiment 3 and claims 13-19 are drawn to embodiment 4), there being no allowable generic or linking claim. Election was made without traverse in the reply filed on 07/15/2002.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recitation of the polysilicon semiconductor thin film constituting the channel without containing an impurity sets forth

structure not supported by the specification. The specification clearly states the semiconductor thin film contains either p-type impurity or n-type impurity. Applicant is requested to point out exactly wherein the application that provides the support for the limitation as recited in claim 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (USPN 5,808,595).

Kubota et al. discloses the claimed display apparatus comprising a plurality of thin film transistors, each of the thin film transistors (Fig. 1a) comprising a semiconductor thin film 12 constituting a channel 12a, a first gate electrode 16 on one side the semiconductor thin film and a second gate electrode 14 on an opposite side of the semiconductor thin film, wherein the semiconductor thin film inherently having a threshold voltage when voltages are applied to both first and second gate electrodes, and further comprising a means for adjusting the threshold voltage by applying a first threshold adjustment voltage (-20V) to the second gate electrode when the first gate electrode receives a first control voltage (0 V when the transistor is not selected or off state) and applying a second threshold adjustment voltage (-20V) to the second gate electrode when the first electrode receives a second control voltage (predetermined

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voltage when the transistor is selected or on state). The claim does not require the first threshold adjustment voltage to the second gate electrode 14 during off state to be different from the second threshold adjustment voltage to the second gate electrode 14 during on state. Therefore, Kubota's means for adjusting the threshold voltage reads on the means as claimed. Also, the voltage applied to the first gate electrode (0V) is different from the threshold adjustment voltage (-20V) applied to the second gate electrode during voltage application.

Regarding claim 2, Kubota et al. further discloses the semiconductor thin film 12 constituting the channel 12a made of polycrystalline silicon (col. 12, lines 25-27) and has a thickness 100nm (col. 13, lines 20-21). Kubota et al. further discloses some of the thin film transistors being p-channel transistors. It is a known fact that for p-channel transistors, the channel 12a is doped of n-type impurity which is either phosphorus or arsenic. Therefore, the channel does not contain boron which is a p-type impurity that effectively affects the formation of a depletion layer.

Regarding claim 3, Kubota et al. further disclose n-channel transistors being turned into those of depletion type wherein the film thickness of the semiconductor thin film 12 is set to not more than two times the maximum thickness of the depletion layer (col. 13, lines 14-18). It is a known fact that for n-channel transistors, the channel 12a is doped of p-type impurity which is boron. Therefore, it is inherent that the semiconductor thin film 12 of the n-channel transistors contains an impurity effectively affecting the formation of a depletion layer.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thien F. Tran whose telephone number is (571) 272-1665. The examiner can normally be reached on 8:30AM - 5:00PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tt

March 6, 2005


THIEN TRAN
PRIMARY EXAMINER